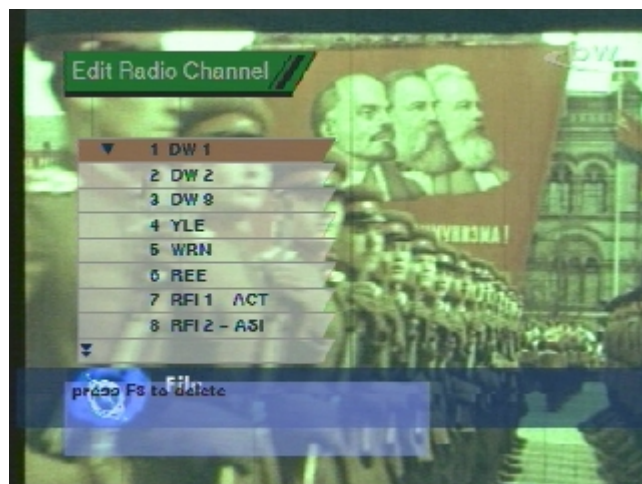


- DTR4000CA program list.

## Edit Radio Channel

You can delete the unnecessary Radio Channels from the registry of DTR4000CA.

- In Edit Channel menu, select Edit Radio Channel menu. Then the following screen pops up



- From the channel list on the screen, you select the channel that you do not want to watch. Then click “F3” button twice. The channel disappears from the DTR4000CA program list.

## Add to Favorite

Your favorite channels can be saved to your favorite channel list. So, later you can easily find your favorite channels from the list.

- In Edit Channel Menu, select Add to Favorites. Then the following screen pops up



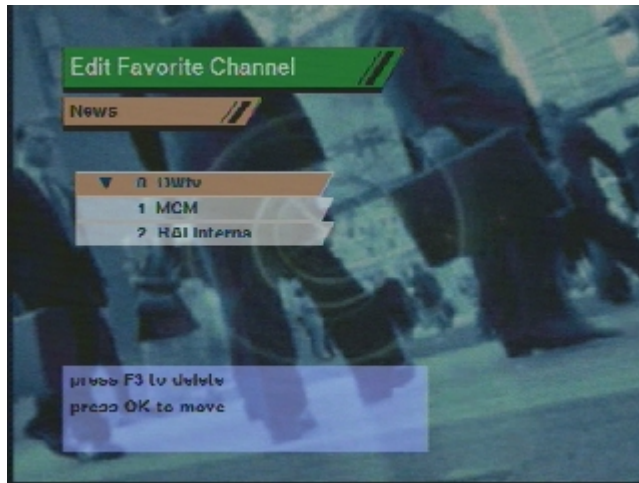
- For the left side of the screen, you can choose TV channels or Radio Channels in a consecutive way by pushing “” on the Remote Control.

- For Favorite channel side, by clicking “FAV” button on the Remote Control, you can choose your favorite channel group out of 12 favorite groups such as Sports, Children, Music, Arts/Culture, Social, Education, Leisure, Special, User, Movie/Drama, News, Show/Game
- After selecting a channel that you want to save into the favorite channel list, by pressing “F1”, you can add the channel into the favorite channel list.

### Edit Favorite Channel

You can delete channels from your favorite channel list, and you can change the order of channel selection priority.

- In Edit Channel Menu, select Edit Favorite Channel. Then the following screen pops up

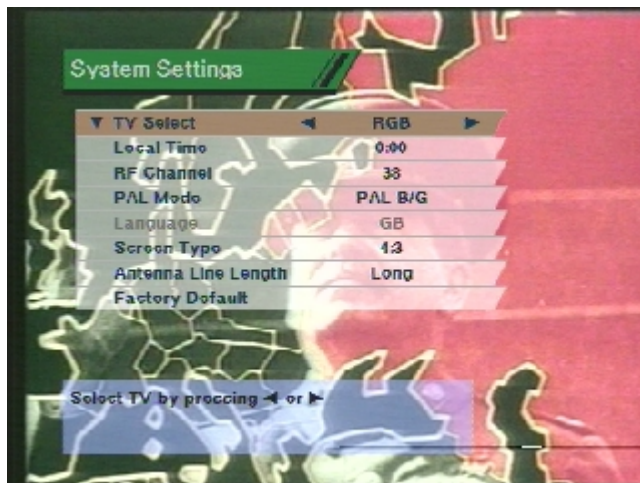


- From the favorite channel list on the screen, you select the channel that you do not want to watch. Then click “F3” button twice. The channel disappears from the DTR4000CA program list.
- In order to change channel selection priority, highlight the channel that you want to upgrade the priority by Up/Down key and push “OK” button of the Remote Control. Then by using Up/Down key, bring the channel the right place and click “OK” button again. Then the moved channel resides in that place from that time.

### System Settings

This menu helps you set up several thing such as TV Select, PAL mode, and Factory Default, and etc.

- Select the DTR4000CA setup submenu on the Main Menu. The following submenu will show up on your TV.



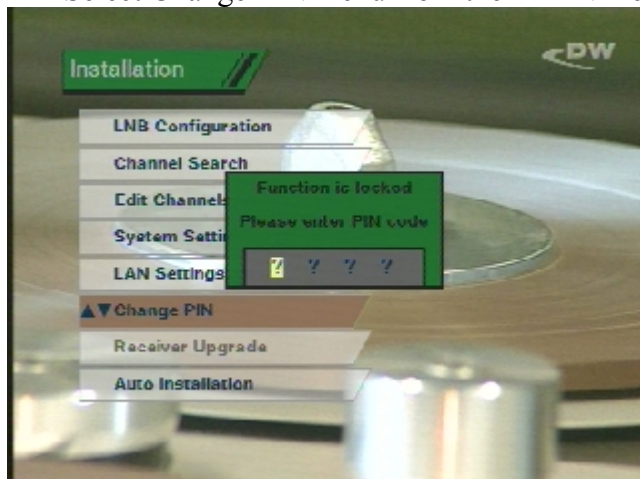
|                     |                                                                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TV select           | Selects the type of TV Receiver – RGB, CVBS, S-VHS                                                                                                                         |
| Local Time          | Selects local time by 30 minute unit                                                                                                                                       |
| RF Channel          | Select or input RF channel number when DTR4000CA is connected to TV by RF connector.                                                                                       |
| PAL Mode            | In the above case, you can choose PAL standard mode.                                                                                                                       |
| Antenna Line Length | If the line from antenna to DTR4000CA is too long, choose “long”, otherwise “choose “short”                                                                                |
| Factory Default     | Select this option when you want to change all setting to Factory default.<br>* In this case, all setting information of Channel, LAN, and System settings will be erased. |
| Screen Type         | You can choose either 4:3 or 16:9 according to the TV type.                                                                                                                |

## Change PIN

### PIN Code

You can change PIN number with this menu

- Select Change PIN menu from the MAIN menu.



- When you are asked to enter PIN Code, you enter current PIN Code. Then you will be

asked for new PIN Code. You enter new PIN code, and the system re-asks you to repeat the PIN Code. If you enter the new PIN Code again, then the PIN code is permanently changed.

**\*\*** Be sure not to forget the PIN code. If you forget the PIN Code, you have to contact the distributor to clear up the problem

## Receiver Update

- At the moment, the DTR4000CA can be upgraded via RS-232C cable from the PC. The upgrade software can be downloaded from the manufacturer's web site. "Http://WWW.Telemann.com".
- Upgrade through Satellite will be added later.

## Auto Installation

Based on the Satellite and Transponder information attached at the end of this manual, DTR4000CA automatically sets all channels from a Satellite. This information may change from time to time. When you cannot receive any signal from any satellite or transponder, check the information of those satellite or transponder.

- Select the Auto Installation from the MAIN menu.



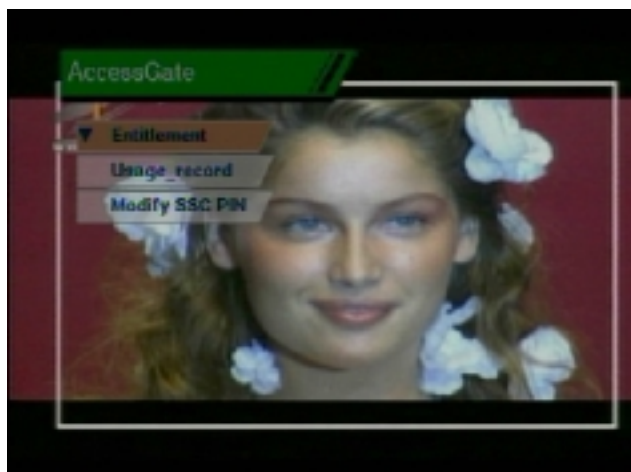
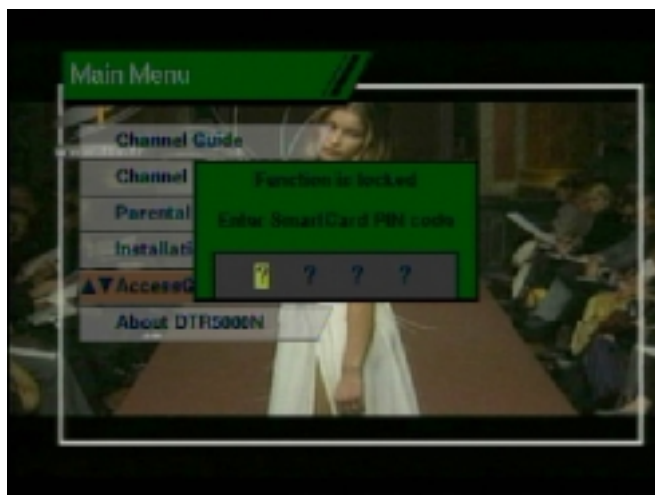
|                     |                                                                             |
|---------------------|-----------------------------------------------------------------------------|
| LNB Selection       | From LNBs that you set up in LNB Setup menu, select one LNB.                |
| Region Selection    | Selects from Europe, Asia, or America based on where the DTR4000CA is used. |
| Satellite Selection | Select the satellite that you wants.                                        |

- After you set up the above three menus, press "OK". Then, DTR4000CA will start to automatically search and set channels. To search the whole satellite, It will take time.
- The Factory Default Satellite information is listed in Annex "Factory Default Satellite Information". This satellite information can be updated. For upgrade, please refer to the manufacturer's web site.

## AccessGate

AccessGate is a kind of Conditional Access System(CAS) manufactured by Global Telecomm Systems Inc. CAS allows a service provider to provide its subscribers a variety of services such as Pay-Per-View Service by using a smart card. In a person's smart card, there is the information of what channel group that person can access to, how much tokens are left in the smart card, and what are the usage record. After a certain time has passed, this information is sent back to the service provider. The service provider uses this information to charge its subscriber. To access the CAS service, a subscriber should contact the Service Provider and get assigned a Smart Card.

At the main menu when you select the AccessGate, you will be asked to enter smart card PIN number. Please enter smart card PIN number that you are given when you subscribe to a service provider



## Entitlement

Entitlement shows you what service groups you subscribe to, what channels you can watch, and the remaining amount of the token. Token is a kind of money by which you can pay for watching TV.



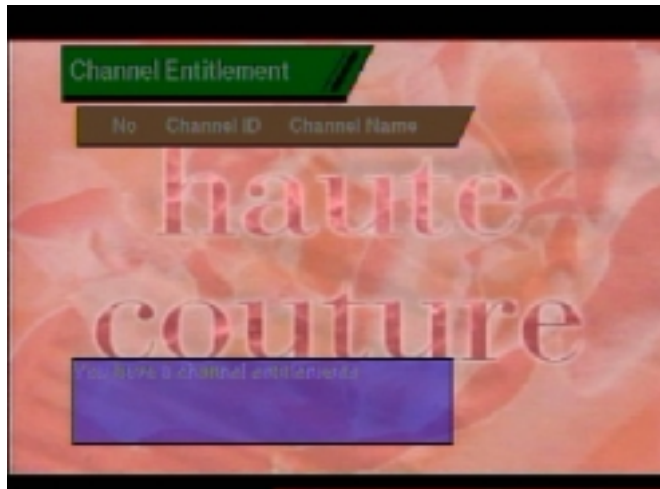
### Group Entitlement

Group entitlement displays what groups you subscribe to as of now. For detailed explanation about Group, please see materials given by the service provider. With one smart card, a subscriber can watch up to 20 groups. For group selection, please contact the service provider.



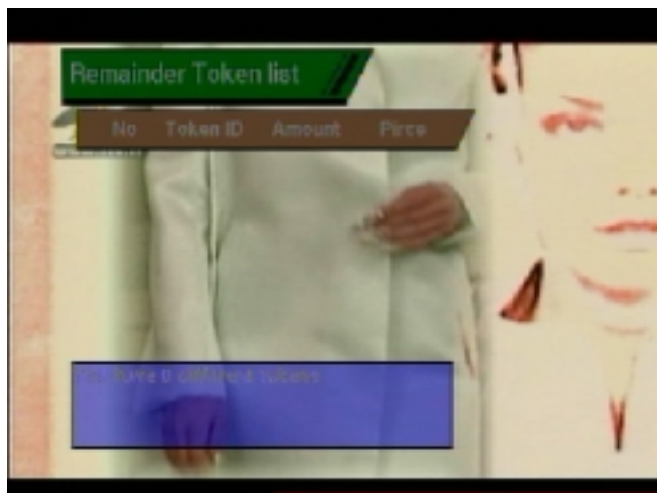
### Channel Entitlement

This menu shows all channel list within the groups that you subscribe to.



### Remainder Token List

This menu shows how many tokens you have and the unit price of each token at that time. As you use the service, the number of token will decrease. If you need more token, you should contact the service provider to have additional token.



### Usage-record

This menu shows the record of a subscriber usage.



### **Amount of record**

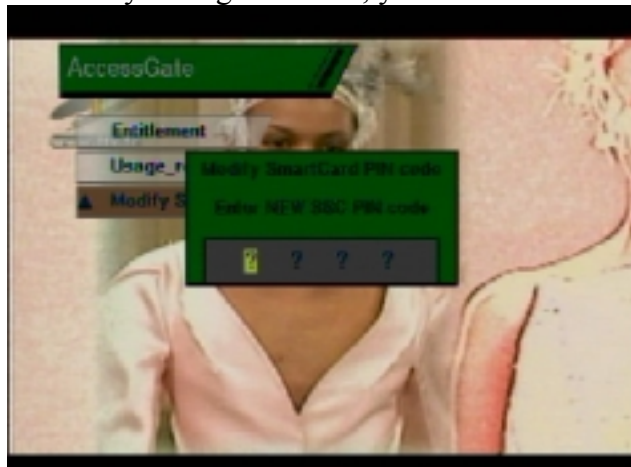
This menu shows the record of your usage. The smart card that each subscriber has keeps the usage information. If the amount of record exceeds certain level of the total, the information should be sent to the service provider and be cleared.

### **List of Record**

This menu shows the list of usage record of a subscriber.

### **Modify Smart Card PIN**

The smart card PIN(Personal Identification Number) is different from that PIN that you enter at the installation menu. The PIN is initially given by the service provider when you subscribe to a service. If you want to change the number, you can use this menu. If you forget the PIN, you should contact the service provider.



# Trouble Shooting

## OSD Display Message

| Message or Display                                                     | Possible Causes                                                                                                                                                                      | Remedies                                                                                                                                           |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Initializing System<br>Please Wait ....                                | Displayed when power on and during initialization and self diagnosis.                                                                                                                |                                                                                                                                                    |
| No Satellite Information in the memory.<br>To exit, press EXIT or MENU | Displayed when the Satellite information in IRD was not valid                                                                                                                        | Download Satellite Information from Telemann's web site.<br><a href="http://www.telemann.com">Http://www.telemann.com</a>                          |
| No Signal<br>Check System or<br>Select other Channel                   | Displays when power-on, channel changes, or when not locked. The system will retry to catch the signal.                                                                              | Check if the antenna cable is correctly connected.<br>Check if the information was correctly entered in LNB configuration and Channel Search Menu. |
| No Transponder Data<br>Enter The Data                                  | When Power on, there is no Channel Data in IRD                                                                                                                                       | After setting LNB configuration, select Auto installation or enter channel data in Channel Search Menu                                             |
| Radio Channel !                                                        | The current channel is a Radio Channel                                                                                                                                               |                                                                                                                                                    |
| Scrambled Channel                                                      | The current channel is scrambles                                                                                                                                                     |                                                                                                                                                    |
| Search Channel<br>Please Wait .....                                    | Displays when power on, channel changes, or when not locked.                                                                                                                         |                                                                                                                                                    |
| Updating Information<br>Please Wait ...                                | Displayed when the information in IRD is updated due to addition or deletion of Channel Data or Parental Lock.<br>Displayed also due to the information change of Edit Channel Menu. |                                                                                                                                                    |

| Message or Display                                                                      | Possible Causes                                                                                                                                                                                                   | Remedies                |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Warning !. You will lose current IRD settings. If you want to continue, press OK again. | Displayed when you run “Factory Default Menu” under Installation/System settings. All information in IRD will be reset to Factory Default information. Any new information will be erased and cannot be restored. |                         |
| Wrong Password !                                                                        | Wrong Password was entered In Parental Lock, Installation Menu, and Channel of Parental Lock                                                                                                                      | Enter correct Password. |

## Front Panel Display Message

| Message or Display | Possible Causes                                                                        | Remedies                                                                 |
|--------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| -----              | IRD is at standby                                                                      | Press Standby key on Front Panel or Remote control and activate the IRD. |
| 0000               | Displayed when IRD does not work within three seconds after transition to Active Mode. | Refer to Service Center                                                  |
| BERR               | Displayed when error occurred at the conversion from Bootloader to Main Program.       | Refer to the service center.                                             |
| C . . .            | At the change from Standby mode to Active Mode, displayed untill Bootloader activates. |                                                                          |

| Message or Display | Possible Causes | Remedies |
|--------------------|-----------------|----------|
|--------------------|-----------------|----------|

|      |                                                                                                                                                                         |                                                                                                                                            |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| D OK | Displayed when Main Program or Satellite Information has been successfully downloaded. When rebooting happens fast, you can not see this Message.                       |                                                                                                                                            |
| DERR | Displayed when when downloading of Main Program or Satellite Information has been failed.                                                                               | Try to download the latest information from the Telemann's web site. If you have the same error again, please refer to the service center. |
| DOWN | Displayed while downloading the Main Program or Satellite Program.                                                                                                      |                                                                                                                                            |
| NOCH | Displayed when there is no channel data in IRD at power on                                                                                                              | Do Auto Installation or Enter channel data at Channel Search Menu.                                                                         |
| SERR | Displayed when the version of downloaded information ( Main program or Satellite Information ) has the same as or previous than the current information version in IRD. | Download the latest Main Program or Satellite Information.                                                                                 |

# Technical Specifications

## Tuner

Input Frequency 950-2150MHz  
 Input Impedance 75Ω  
 Connector 2xF-type  
 LNB Power Supply 14/18V/OFF, Max.600mA  
 With Short Circuit Protection  
 Band Switch Control 22KHz, DiSEqC1.0

## Demodulator

Waveform QPSK  
 Symbol Rate 2-45MS/s  
 Roll of Factor 0.35  
 Outer Decoder Reed Solomon (204,188,16)  
 Deinterleaver Convolutional, Depth 12  
 Inner Decoder Convolutional, Length 7  
 Code Rate 1/2,2/3,3/4,5/6,7/8  
 SCPC and MCPC Capable

## Demultiplexer

CD ISO/IEC 13818-1 Compliant

## Video Decoder

Video Decoder CD ISO/IEC 13818-2 Compliant  
 MPEG-2 Main Profile @Main Level  
 Video Format 4:3, 16:9 (PAN and SCAN)  
 Video System PAL/SECAM<-->NTSC Converter  
 RF Output CH21-69 (PAL B/G/I/D/K) or  
 CH3, 4 (NTSC)

## Audio Decoder

Audio Decoder MPEG-1 & MPEG-2 Layer I and II  
 (Musicam Audio)  
 Audio Channel Mono, Dual Channel,  
 Stereo  
 Volume Control 40 Level Adjust

## Serial Data Interface

Connector 9-Pin D-Sub(Male)  
 Signal RS-232 Max.384Kbaud  
 Software available from our WWW site :  
<http://www.telemann.com>

## System Service Interface

Connector 15-Pin D-Sub(Female)  
 Signal DCU LINK Signal

## Audio/Video Connectors

TV Scart RGB, CVBS, Audio  
 VCR Scart CVBS, Audio  
 Audio Output 2xRCA Cinch (L/R)  
 Composite  
 Video Output 1xRCA Cinch  
 S-VHS Video Output 1xMini-DIN

## Internal Modem(Optional)

Modular Jack RJ11 Type  
 Up to 33.6 kbps

## General

Remote Control Unit  
 Color OSD, Easy-to-Use Menu  
 Operating temp. +5□ to +40□  
 Power Supply Voltage 85 to 265VAC 50/60Hz  
 Power Consumption Max. 30W (Stand-by 5W)  
 Weight Approx. 3.0Kg  
 Dimensions 380(W) x 250(D) x 80(H)mm  
 Channel Memory  
 LNB 8  
 Transponder Max 200  
 Channel Max 1,000

# Factory Default Satellite Information

Based on the Satellite and Transponder information here, DTR4000CA automatically sets all channels from a Satellite. This information may change from time to time. When you cannot receive any signal from any satellite or transponder, check the information of those satellite or transponder.

<<< Version : 00.01

<<< Region : ASIA :

<<< The number of Satellite : 11

|                                          |              |
|------------------------------------------|--------------|
| Satellite Name : NSS 703 at 57&deg; East |              |
| *** The number of Transponder : 12       |              |
| *** Downlink Frequency                   |              |
| * 1 : 3825                               | * 6 : 4187   |
| * 2 : 3843                               | * 7 : 4196   |
| * 3 : 4027                               | * 8 : 10992  |
| * 4 : 4095                               | * 9 : 11057  |
| * 5 : 4143                               | * 10 : 11075 |
|                                          | * 11 : 11555 |
|                                          | * 12 : 11600 |

|                                              |              |
|----------------------------------------------|--------------|
| Satellite Name : Apstar 2R at 76.5&deg; East |              |
| *** The number of Transponder : 17           |              |
| *** Downlink Frequency                       |              |
| * 1 : 3695                                   | * 9 : 12303  |
| * 2 : 3720                                   | * 10 : 12360 |
| * 3 : 3814                                   | * 11 : 12365 |
| * 4 : 3849                                   | * 12 : 12370 |
| * 5 : 3880                                   | * 13 : 12400 |
| * 6 : 3920                                   | * 14 : 12403 |
| * 7 : 3960                                   | * 15 : 12430 |
| * 8 : 12280                                  | * 16 : 12493 |
|                                              | * 17 : 12629 |

|                                               |              |
|-----------------------------------------------|--------------|
| Satellite Name : Asiasat 2 at 100.5&deg; East |              |
| *** The number of Transponder : 34            |              |
| *** Downlink Frequency                        |              |
| * 1 : 3700                                    | * 18 : 3830  |
| * 2 : 3706                                    | * 19 : 3834  |
| * 3 : 3713                                    | * 20 : 3840  |
| * 4 : 3720                                    | * 21 : 3847  |
| * 5 : 3727                                    | * 22 : 3854  |
| * 6 : 3734                                    | * 23 : 3900  |
| * 7 : 3740                                    | * 24 : 3940  |
| * 8 : 3765                                    | * 25 : 4000  |
| * 9 : 3766                                    | * 26 : 4007  |
| * 10 : 3774                                   | * 27 : 4020  |
| * 11 : 3786                                   | * 28 : 4133  |
| * 12 : 3796                                   | * 29 : 4143  |
| * 13 : 3799                                   | * 30 : 4185  |
| * 14 : 3806                                   | * 31 : 12244 |

|             |              |
|-------------|--------------|
| * 15 : 3813 | * 32 : 12329 |
| * 16 : 3820 | * 33 : 12339 |
| * 17 : 3827 | * 34 : 12349 |

|                                               |  |
|-----------------------------------------------|--|
| Satellite Name : Asiasat 1 at 105.5&deg; East |  |
| *** The number of Transponder : 2             |  |
| *** Downlink Frequency                        |  |
| * 1 : 3780                                    |  |
| * 2 : 3880                                    |  |

|                                                  |            |
|--------------------------------------------------|------------|
| Satellite Name : Cakrawarta 1 at 107.7&deg; East |            |
| *** The number of Transponder : 4                |            |
| *** Downlink Frequency                           |            |
| * 1 : 2536                                       | * 3 : 2596 |
| * 2 : 2566                                       | * 4 : 2656 |

|                                            |             |
|--------------------------------------------|-------------|
| Satellite Name : Apstar 1 at 138&deg; East |             |
| *** The number of Transponder : 11         |             |
| *** Downlink Frequency                     |             |
| * 1 : 3684                                 | * 6 : 3900  |
| * 2 : 3730                                 | * 7 : 3914  |
| * 3 : 3742                                 | * 8 : 3924  |
| * 4 : 3860                                 | * 9 : 3980  |
| * 5 : 3870                                 | * 10 : 4195 |
|                                            | * 11 : 3800 |

|                                               |              |
|-----------------------------------------------|--------------|
| Satellite Name : Superbird C at 144&deg; East |              |
| *** The number of Transponder : 17            |              |
| *** Downlink Frequency                        |              |
| * 1 : 12362                                   | * 9 : 12613  |
| * 2 : 12508                                   | * 10 : 12628 |
| * 3 : 12523                                   | * 11 : 12643 |
| * 4 : 12538                                   | * 12 : 12658 |
| * 5 : 12553                                   | * 13 : 12673 |
| * 6 : 12568                                   | * 14 : 12688 |
| * 7 : 12583                                   | * 15 : 12703 |
| * 8 : 12598                                   | * 16 : 12718 |
|                                               | * 17 : 12733 |

|                                           |             |
|-------------------------------------------|-------------|
| Satellite Name : Agila 2 at 146&deg; East |             |
| *** The number of Transponder : 6         |             |
| *** Downlink Frequency                    |             |
| * 1 : 3915                                | * 4 : 4133  |
| * 2 : 4085                                | * 5 : 4155  |
| * 3 : 4126                                | * 6 : 12301 |

|                                            |             |
|--------------------------------------------|-------------|
| Satellite Name : Optus B3 at 156&deg; East |             |
| *** The number of Transponder : 6          |             |
| *** Downlink Frequency                     |             |
| * 1 : 12407                                | * 4 : 12595 |
| * 2 : 12438                                | * 5 : 12626 |
| * 3 : 12564                                | * 6 : 12689 |

|                                            |             |
|--------------------------------------------|-------------|
| Satellite Name : Optus B1 at 160&deg; East |             |
| *** The number of Transponder : 5          |             |
| *** Downlink Frequency                     |             |
| * 1 : 12367                                | * 4 : 12518 |
| * 2 : 12391                                | * 5 : 12546 |

|             |  |
|-------------|--|
| * 3 : 12418 |  |
|-------------|--|

|                                              |              |
|----------------------------------------------|--------------|
| Satellite Name : Panamsat 2 at 169&deg; East |              |
| *** The number of Transponder : 35           |              |
| *** Downlink Frequency                       |              |
| * 1 : 3716                                   | * 18 : 4189  |
| * 2 : 3743                                   | * 19 : 12265 |
| * 3 : 3776                                   | * 20 : 12295 |
| * 4 : 3778                                   | * 21 : 12305 |
| * 5 : 3804                                   | * 22 : 12325 |
| * 6 : 3836                                   | * 23 : 12492 |
| * 7 : 3859                                   | * 24 : 12513 |
| * 8 : 3901                                   | * 25 : 12525 |
| * 9 : 3939                                   | * 26 : 12529 |
| * 10 : 3940                                  | * 27 : 12605 |
| * 11 : 3963                                  | * 28 : 12629 |
| * 12 : 4034                                  | * 29 : 12637 |
| * 13 : 4093                                  | * 30 : 12646 |
| * 14 : 4148                                  | * 31 : 12656 |
| * 15 : 4153                                  | * 32 : 12665 |
| * 16 : 4174                                  | * 33 : 12703 |
| * 17 : 4183                                  | * 34 : 3778  |
|                                              | * 35 : 3901  |

&lt;&lt;&lt; Region : AMERICA

&lt;&lt;&lt; The number of Satellite : 14

|                                                                 |             |
|-----------------------------------------------------------------|-------------|
| Satellite Name : Echostar 4 at 212&deg; East<br>(148&deg; West) |             |
| *** The number of Transponder : 6                               |             |
| *** Downlink Frequency                                          |             |
| * 1 : 12253                                                     | * 4 : 12428 |
| * 2 : 12311                                                     | * 5 : 12486 |
| * 3 : 12370                                                     | * 6 : 12545 |

|                                                                |            |
|----------------------------------------------------------------|------------|
| Satellite Name : Satcom C4 at 225&deg; East<br>(135&deg; West) |            |
| *** The number of Transponder : 2                              |            |
| *** Downlink Frequency                                         |            |
| * 1 : 3800                                                     | * 2 : 4067 |

|                                                                |            |
|----------------------------------------------------------------|------------|
| Satellite Name : Galaxy 1R at 227&deg; East<br>(133&deg; West) |            |
| *** The number of Transponder : 8                              |            |
| *** Downlink Frequency                                         |            |
| * 1 : 3760                                                     | * 5 : 4014 |
| * 2 : 3834                                                     | * 6 : 4025 |
| * 3 : 3960                                                     | * 7 : 4060 |
| * 4 : 4000                                                     | * 8 : 4160 |

|                                                                |            |
|----------------------------------------------------------------|------------|
| Satellite Name : Satcom C3 at 229&deg; East<br>(131&deg; West) |            |
| *** The number of Transponder : 9                              |            |
| *** Downlink Frequency                                         |            |
| * 1 : 3720                                                     | * 5 : 4000 |
| * 2 : 3760                                                     | * 6 : 4075 |
| * 3 : 3784                                                     | * 7 : 4100 |
| * 4 : 3820                                                     | * 8 : 4140 |

|  |            |
|--|------------|
|  | * 9 : 4176 |
|--|------------|

|                                                                    |              |
|--------------------------------------------------------------------|--------------|
| Satellite Name : SBS 5 - Galaxy 9 at 237&deg; East (123&deg; West) |              |
| *** The number of Transponder : 10                                 |              |
| *** Downlink Frequency                                             |              |
| * 1 : 3795                                                         | * 6 : 3920   |
| * 2 : 3814                                                         | * 7 : 3960   |
| * 3 : 3840                                                         | * 8 : 4160   |
| * 4 : 3880                                                         | * 9 : 11735  |
| * 5 : 3900                                                         | * 10 : 11792 |

|                                                                |              |
|----------------------------------------------------------------|--------------|
| Satellite Name : Echostar 1/2 at 241&deg; East (119&deg; West) |              |
| *** The number of Transponder : 21                             |              |
| *** Downlink Frequency                                         |              |
| * 1 : 12224                                                    | * 11 : 12370 |
| * 2 : 12239                                                    | * 12 : 12384 |
| * 3 : 12253                                                    | * 13 : 12399 |
| * 4 : 12268                                                    | * 14 : 12414 |
| * 5 : 12282                                                    | * 15 : 12428 |
| * 6 : 12297                                                    | * 16 : 12443 |
| * 7 : 12311                                                    | * 17 : 12457 |
| * 8 : 12326                                                    | * 18 : 12472 |
| * 9 : 12341                                                    | * 19 : 12486 |
| * 10 : 12355                                                   | * 20 : 12501 |
|                                                                | * 21 : 12516 |

|                                                               |              |
|---------------------------------------------------------------|--------------|
| Satellite Name : Anik E2 at 252.7&deg; East (107.3&deg; West) |              |
| *** The number of Transponder : 40                            |              |
| *** Downlink Frequency                                        |              |
| * 1 : 3760                                                    | * 21 : 11865 |
| * 2 : 3855                                                    | * 22 : 11878 |
| * 3 : 3920                                                    | * 23 : 11900 |
| * 4 : 3984                                                    | * 24 : 11913 |
| * 5 : 4016                                                    | * 25 : 11926 |
| * 6 : 4034                                                    | * 26 : 11939 |
| * 7 : 4080                                                    | * 27 : 11961 |
| * 8 : 4120                                                    | * 28 : 11974 |
| * 9 : 4140                                                    | * 29 : 11987 |
| * 10 : 4180                                                   | * 30 : 12000 |
| * 11 : 11717                                                  | * 31 : 12022 |
| * 12 : 11730                                                  | * 32 : 12035 |
| * 13 : 11743                                                  | * 33 : 12048 |
| * 14 : 11756                                                  | * 34 : 12061 |
| * 15 : 11778                                                  | * 35 : 12083 |
| * 16 : 11791                                                  | * 36 : 12096 |
| * 17 : 11804                                                  | * 37 : 12109 |
| * 18 : 11817                                                  | * 38 : 12157 |
| * 19 : 11839                                                  | * 39 : 12170 |
| * 20 : 11852                                                  | * 40 : 12183 |

|                                                        |  |
|--------------------------------------------------------|--|
| Satellite Name : GE 1 at 257&deg; East (103&deg; West) |  |
| *** The number of Transponder : 21                     |  |
| *** Downlink Frequency                                 |  |

|              |              |
|--------------|--------------|
| * 1 : 3760   | * 11 : 11834 |
| * 2 : 3780   | * 12 : 11940 |
| * 3 : 3800   | * 13 : 12065 |
| * 4 : 3840   | * 14 : 12075 |
| * 5 : 4060   | * 15 : 12085 |
| * 6 : 4100   | * 16 : 12095 |
| * 7 : 11812  | * 17 : 12105 |
| * 8 : 11818  | * 18 : 12115 |
| * 9 : 11823  | * 19 : 12125 |
| * 10 : 11827 | * 20 : 12135 |
|              | * 21 : 12160 |

|                                                                          |  |
|--------------------------------------------------------------------------|--|
| Satellite Name : DBS 1/2/3 - Spacenet 4 at 259&deg; East (101&deg; West) |  |
| *** The number of Transponder : 0                                        |  |
| *** Downlink Frequency                                                   |  |

|                                                            |              |
|------------------------------------------------------------|--------------|
| Satellite Name : Telstar 5 at 263&deg; East (97&deg; West) |              |
| *** The number of Transponder : 20                         |              |
| *** Downlink Frequency                                     |              |
| * 1 : 3740                                                 | * 11 : 11900 |
| * 2 : 3760                                                 | * 12 : 11904 |
| * 3 : 3780                                                 | * 13 : 11936 |
| * 4 : 3800                                                 | * 14 : 11966 |
| * 5 : 3940                                                 | * 15 : 11991 |
| * 6 : 4060                                                 | * 16 : 12084 |
| * 7 : 4100                                                 | * 17 : 12090 |
| * 8 : 4160                                                 | * 18 : 12115 |
| * 9 : 11748                                                | * 19 : 12152 |
| * 10 : 11874                                               | * 20 : 12177 |

|                                                           |              |
|-----------------------------------------------------------|--------------|
| Satellite Name : Galaxy 7 at 269&deg; East (91&deg; West) |              |
| *** The number of Transponder : 21                        |              |
| *** Downlink Frequency                                    |              |
| * 1 : 3720                                                | * 11 : 11780 |
| * 2 : 3780                                                | * 12 : 11810 |
| * 3 : 3800                                                | * 13 : 11840 |
| * 4 : 3880                                                | * 14 : 11870 |
| * 5 : 3960                                                | * 15 : 11900 |
| * 6 : 4020                                                | * 16 : 11930 |
| * 7 : 4040                                                | * 17 : 11960 |
| * 8 : 4160                                                | * 18 : 11990 |
| * 9 : 4180                                                | * 19 : 12080 |
| * 10 : 11720                                              | * 20 : 12110 |
|                                                           | * 21 : 12140 |

|                                                                 |            |
|-----------------------------------------------------------------|------------|
| Satellite Name : GE 2 at 275&deg; East (85&deg; West)           |            |
| *** The number of Transponder : 2                               |            |
| *** Downlink Frequency                                          |            |
| * 1 : 3886                                                      | * 2 : 3987 |
|                                                                 |            |
| Satellite Name : Echostar 3 at 298.5&deg; East (61.5&deg; West) |            |
| *** The number of Transponder : 13                              |            |
| *** Downlink Frequency                                          |            |

|             |              |
|-------------|--------------|
| * 1 : 12239 | * 7 : 12414  |
| * 2 : 12268 | * 8 : 12443  |
| * 3 : 12297 | * 9 : 12472  |
| * 4 : 12326 | * 10 : 12501 |
| * 5 : 12355 | * 11 : 12530 |
| * 6 : 12384 | * 12 : 12559 |
|             | * 13 : 12574 |

|                                                             |              |
|-------------------------------------------------------------|--------------|
| Satellite Name : Panamsat 5 at 302&deg; East (58&deg; West) |              |
| *** The number of Transponder : 27                          |              |
| *** Downlink Frequency                                      |              |
| * 1 : 3760                                                  | * 14 : 4120  |
| * 2 : 3795                                                  | * 15 : 4134  |
| * 3 : 3800                                                  | * 16 : 10727 |
| * 4 : 3840                                                  | * 17 : 10768 |
| * 5 : 3880                                                  | * 18 : 10809 |
| * 6 : 3909                                                  | * 19 : 10850 |
| * 7 : 3915                                                  | * 20 : 10891 |
| * 8 : 3920                                                  | * 21 : 10932 |
| * 9 : 3934                                                  | * 22 : 11219 |
| * 10 : 4000                                                 | * 23 : 11261 |
| * 11 : 4040                                                 | * 24 : 11303 |
| * 12 : 4064                                                 | * 25 : 11345 |
| * 13 : 4111                                                 | * 26 : 11387 |
|                                                             | * 27 : 11429 |

&lt;&lt;&lt; Region : EUROPE

&lt;&lt;&lt; The number of Satellite : 19

|                                            |              |
|--------------------------------------------|--------------|
| Satellite Name : Sirius 1/2 at 5&deg; East |              |
| *** The number of Transponder : 22         |              |
| *** Downlink Frequency                     |              |
| * 1 : 11747                                | * 12 : 12453 |
| * 2 : 12111                                | * 13 : 12590 |
| * 3 : 12130                                | * 14 : 12600 |
| * 4 : 12153                                | * 15 : 12608 |
| * 5 : 12169                                | * 16 : 12618 |
| * 6 : 12245                                | * 17 : 12632 |
| * 7 : 12284                                | * 18 : 12634 |
| * 8 : 12303                                | * 19 : 12641 |
| * 9 : 12334                                | * 20 : 12659 |
| * 10 : 12380                               | * 21 : 12674 |
| * 11 : 12399                               | * 22 : 12677 |

|                                                 |              |
|-------------------------------------------------|--------------|
| Satellite Name : Eutelsat II F2 at 10&deg; East |              |
| *** The number of Transponder : 14              |              |
| *** Downlink Frequency                          |              |
| * 1 : 11006                                     | * 8 : 11061  |
| * 2 : 11011                                     | * 9 : 11130  |
| * 3 : 11014                                     | * 10 : 11135 |
| * 4 : 11016                                     | * 11 : 11581 |
| * 5 : 11020                                     | * 12 : 11608 |
| * 6 : 11024                                     | * 13 : 12576 |
| * 7 : 11026                                     | * 14 : 12712 |

|                                              |  |
|----------------------------------------------|--|
| Satellite Name : Hotbird 1-5 at 13&deg; East |  |
|----------------------------------------------|--|

|                                    |              |
|------------------------------------|--------------|
| *** The number of Transponder : 69 |              |
| *** Downlink Frequency             |              |
| * 1 : 10719                        | * 35 : 11938 |
| * 2 : 10722                        | * 36 : 11958 |
| * 3 : 10758                        | * 37 : 11996 |
| * 4 : 10775                        | * 38 : 12015 |
| * 5 : 10796                        | * 39 : 12034 |
| * 6 : 10834                        | * 40 : 12054 |
| * 7 : 10873                        | * 41 : 12073 |
| * 8 : 10892                        | * 42 : 12092 |
| * 9 : 10911                        | * 43 : 12111 |
| * 10 : 10914                       | * 44 : 12149 |
| * 11 : 11034                       | * 45 : 12169 |
| * 12 : 11054                       | * 46 : 12201 |
| * 13 : 11131                       | * 47 : 12221 |
| * 14 : 11205                       | * 48 : 12226 |
| * 15 : 11242                       | * 49 : 12245 |
| * 16 : 11304                       | * 50 : 12265 |
| * 17 : 11331                       | * 51 : 12303 |
| * 18 : 11338                       | * 52 : 12341 |
| * 19 : 11371                       | * 53 : 12380 |
| * 20 : 11422                       | * 54 : 12399 |
| * 21 : 11457                       | * 55 : 12418 |
| * 22 : 11464                       | * 56 : 12460 |
| * 23 : 11548                       | * 57 : 12520 |
| * 24 : 11642                       | * 58 : 12558 |
| * 25 : 11662                       | * 59 : 12573 |
| * 26 : 11681                       | * 60 : 12581 |
| * 27 : 11766                       | * 61 : 12590 |
| * 28 : 11804                       | * 62 : 12597 |
| * 29 : 11823                       | * 63 : 12616 |
| * 30 : 11843                       | * 64 : 12635 |
| * 31 : 11862                       | * 65 : 12654 |
| * 32 : 11881                       | * 66 : 12673 |
| * 33 : 11900                       | * 67 : 12692 |
| * 34 : 11919                       | * 68 : 12713 |
|                                    | * 69 : 12735 |

|                                                               |              |
|---------------------------------------------------------------|--------------|
| Satellite Name : Astra 1A 1B 1C 1D 1E 1F 1G at 19.2&deg; East |              |
| *** The number of Transponder : 46                            |              |
| *** Downlink Frequency                                        |              |
| * 1 : 11720                                                   | * 24 : 12246 |
| * 2 : 11740                                                   | * 25 : 12266 |
| * 3 : 11758                                                   | * 26 : 12285 |
| * 4 : 11778                                                   | * 27 : 12304 |
| * 5 : 11798                                                   | * 28 : 12324 |
| * 6 : 11817                                                   | * 29 : 12344 |
| * 7 : 11837                                                   | * 30 : 12363 |
| * 8 : 11856                                                   | * 31 : 12382 |
| * 9 : 11895                                                   | * 32 : 12402 |
| * 10 : 11934                                                  | * 33 : 12422 |
| * 11 : 11973                                                  | * 34 : 12480 |
| * 12 : 11992                                                  | * 35 : 12515 |
| * 13 : 12012                                                  | * 36 : 12522 |
| * 14 : 12032                                                  | * 37 : 12552 |
| * 15 : 12051                                                  | * 38 : 12574 |
| * 16 : 12070                                                  | * 39 : 12581 |

|              |              |
|--------------|--------------|
| * 17 : 12090 | * 40 : 12604 |
| * 18 : 12129 | * 41 : 12663 |
| * 19 : 12148 | * 42 : 12670 |
| * 20 : 12168 | * 43 : 12692 |
| * 21 : 12188 | * 44 : 12722 |
| * 22 : 12207 | * 45 : 11837 |
| * 23 : 12226 | * 46 : 12012 |

|                                                 |              |
|-------------------------------------------------|--------------|
| Satellite Name : Kopernikus 3 at 23.5&deg; East |              |
| *** The number of Transponder : 15              |              |
| *** Downlink Frequency                          |              |
| * 1 : 11466                                     | * 8 : 11650  |
| * 2 : 11498                                     | * 9 : 11680  |
| * 3 : 11530                                     | * 10 : 12524 |
| * 4 : 11541                                     | * 11 : 12559 |
| * 5 : 11573                                     | * 12 : 12610 |
| * 6 : 11605                                     | * 13 : 12658 |
| * 7 : 11616                                     | * 14 : 12692 |
|                                                 | * 15 : 12725 |

|                                             |             |
|---------------------------------------------|-------------|
| Satellite Name : Arabsat 2A at 26&deg; East |             |
| *** The number of Transponder : 6           |             |
| *** Downlink Frequency                      |             |
| * 1 : 3977                                  | * 4 : 12505 |
| * 2 : 4013                                  | * 5 : 12563 |
| * 3 : 4044                                  | * 6 : 12605 |

|                                                                         |             |
|-------------------------------------------------------------------------|-------------|
| Satellite Name : Gals 1/2 -Eutelsat II F3 - Most 1 - TDF 2 36&deg; East |             |
| *** The number of Transponder : 8                                       |             |
| *** Downlink Frequency                                                  |             |
| * 1 : 11050                                                             | * 5 : 12399 |
| * 2 : 11139                                                             | * 6 : 12508 |
| * 3 : 12322                                                             | * 7 : 12516 |
| * 4 : 12380                                                             | * 8 : 12534 |

|                                             |              |
|---------------------------------------------|--------------|
| Satellite Name : Turksat 1C at 42&deg; East |              |
| *** The number of Transponder : 19          |              |
| *** Downlink Frequency                      |              |
| * 1 : 10980                                 | * 10 : 11143 |
| * 2 : 10986                                 | * 11 : 11146 |
| * 3 : 11014                                 | * 12 : 11158 |
| * 4 : 11020                                 | * 13 : 11166 |
| * 5 : 11041                                 | * 14 : 11508 |
| * 6 : 11046                                 | * 15 : 11582 |
| * 7 : 11068                                 | * 16 : 11587 |
| * 8 : 11129                                 | * 17 : 11607 |
| * 9 : 11138                                 | * 18 : 11660 |
|                                             | * 19 : 11665 |

|                                               |              |
|-----------------------------------------------|--------------|
| Satellite Name : PanAmSat 4 at 68.5&deg; East |              |
| *** The number of Transponder : 20            |              |
| *** Downlink Frequency                        |              |
| * 1 : 3716                                    | * 11 : 11464 |
| * 2 : 3743                                    | * 12 : 11584 |
| * 3 : 3786                                    | * 13 : 12517 |
| * 4 : 3800                                    | * 14 : 12544 |
| * 5 : 3932                                    | * 15 : 12577 |

|             |              |
|-------------|--------------|
| * 6 : 3994  | * 16 : 12604 |
| * 7 : 4034  | * 17 : 12637 |
| * 8 : 4086  | * 18 : 12664 |
| * 9 : 4113  | * 19 : 12729 |
| * 10 : 4155 | * 20 : 3971  |

|                                                             |             |
|-------------------------------------------------------------|-------------|
| Satellite Name : Panamsat 1 at 315&deg; East (45&deg; West) |             |
| *** The number of Transponder : 7                           |             |
| *** Downlink Frequency                                      |             |
| * 1 : 3883                                                  | * 4 : 11594 |
| * 2 : 4058                                                  | * 5 : 11637 |
| * 3 : 4080                                                  | * 6 : 11678 |
|                                                             | * 7 : 11724 |

|                                                                   |              |
|-------------------------------------------------------------------|--------------|
| Satellite Name : Panamsat 6/6B/3R at 317&deg; East (43&deg; West) |              |
| *** The number of Transponder : 34                                |              |
| *** Downlink Frequency                                            |              |
| * 1 : 3707                                                        | * 18 : 10970 |
| * 2 : 3716                                                        | * 19 : 11050 |
| * 3 : 3735                                                        | * 20 : 11170 |
| * 4 : 3743                                                        | * 21 : 11262 |
| * 5 : 3785                                                        | * 22 : 11342 |
| * 6 : 3846                                                        | * 23 : 11729 |
| * 7 : 3863                                                        | * 24 : 11789 |
| * 8 : 3872                                                        | * 25 : 11849 |
| * 9 : 3936                                                        | * 26 : 11914 |
| * 10 : 3958                                                       | * 27 : 11979 |
| * 11 : 3966                                                       | * 28 : 12039 |
| * 12 : 3991                                                       | * 29 : 12099 |
| * 13 : 4026                                                       | * 30 : 12164 |
| * 14 : 4046                                                       | * 31 : 12568 |
| * 15 : 4106                                                       | * 32 : 12580 |
| * 16 : 10722                                                      | * 33 : 12611 |
| * 17 : 10802                                                      | * 34 : 12731 |

|                                                                             |              |
|-----------------------------------------------------------------------------|--------------|
| Satellite Name : Orion 1 - Columbia 515 at 322.5&deg; East (37.5&deg; West) |              |
| *** The number of Transponder : 15                                          |              |
| *** Downlink Frequency                                                      |              |
| * 1 : 11481                                                                 | * 8 : 11622  |
| * 2 : 11534                                                                 | * 9 : 11672  |
| * 3 : 11542                                                                 | * 10 : 12187 |
| * 4 : 11561                                                                 | * 11 : 12607 |
| * 5 : 11567                                                                 | * 12 : 12650 |
| * 6 : 11590                                                                 | * 13 : 12705 |
| * 7 : 11596                                                                 | * 14 : 12732 |
|                                                                             | * 15 : 12734 |

|                                                                   |  |
|-------------------------------------------------------------------|--|
| Satellite Name : Intelsat 601 at 325.5&deg; East (34.5&deg; West) |  |
| *** The number of Transponder : 1                                 |  |
| *** Downlink Frequency                                            |  |
| * 1 : 11158                                                       |  |

|                                                                   |  |
|-------------------------------------------------------------------|--|
| Satellite Name : Intelsat 801 at 328.5&deg; East (31.5&deg; West) |  |
|-------------------------------------------------------------------|--|

|                                    |              |
|------------------------------------|--------------|
| *** The number of Transponder : 14 |              |
| *** Downlink Frequency             |              |
| * 1 : 3732                         | * 8 : 10999  |
| * 2 : 10960                        | * 9 : 11007  |
| * 3 : 10966                        | * 10 : 11016 |
| * 4 : 10972                        | * 11 : 11025 |
| * 5 : 10977                        | * 12 : 11060 |
| * 6 : 10983                        | * 13 : 11627 |
| * 7 : 10990                        | * 14 : 11640 |

|                                                                    |              |
|--------------------------------------------------------------------|--------------|
| Satellite Name : Hispasat 1A 1B at 330&deg; East<br>(30&deg; West) |              |
| *** The number of Transponder : 24                                 |              |
| *** Downlink Frequency                                             |              |
| * 1 : 11509                                                        | * 13 : 12226 |
| * 2 : 11517                                                        | * 14 : 12380 |
| * 3 : 11539                                                        | * 15 : 12456 |
| * 4 : 11643                                                        | * 16 : 12545 |
| * 5 : 11654                                                        | * 17 : 12549 |
| * 6 : 11659                                                        | * 18 : 12591 |
| * 7 : 11664                                                        | * 19 : 12631 |
| * 8 : 11673                                                        | * 20 : 12655 |
| * 9 : 11683                                                        | * 21 : 12666 |
| * 10 : 12015                                                       | * 22 : 12671 |
| * 11 : 12078                                                       | * 23 : 12673 |
| * 12 : 12149                                                       | * 24 : 12711 |

|                                                                      |              |
|----------------------------------------------------------------------|--------------|
| Satellite Name : Intelsat 605 at 332.5&deg; East<br>(27.5&deg; West) |              |
| *** The number of Transponder : 14                                   |              |
| *** Downlink Frequency                                               |              |
| * 1 : 3715                                                           | * 8 : 11058  |
| * 2 : 3762                                                           | * 9 : 11476  |
| * 3 : 3970                                                           | * 10 : 11494 |
| * 4 : 4000                                                           | * 11 : 11500 |
| * 5 : 4047                                                           | * 12 : 11661 |
| * 6 : 4080                                                           | * 13 : 11665 |
| * 7 : 4090                                                           | * 14 : 11689 |

|                                                               |              |
|---------------------------------------------------------------|--------------|
| Satellite Name : NSS K at 338.5&deg; East<br>(21.5&deg; West) |              |
| *** The number of Transponder : 21                            |              |
| *** Downlink Frequency                                        |              |
| * 1 : 3650                                                    | * 11 : 11494 |
| * 2 : 3775                                                    | * 12 : 11550 |
| * 3 : 3850                                                    | * 13 : 11558 |
| * 4 : 3914                                                    | * 14 : 11567 |
| * 5 : 4013                                                    | * 15 : 11590 |
| * 6 : 4082                                                    | * 16 : 11862 |
| * 7 : 4093                                                    | * 17 : 11870 |
| * 8 : 4142                                                    | * 18 : 11880 |
| * 9 : 11481                                                   | * 19 : 11892 |
| * 10 : 11488                                                  | * 20 : 11910 |
|                                                               | * 21 : 12616 |

|                                                           |             |
|-----------------------------------------------------------|-------------|
| Satellite Name : Amos 1 at 356&deg; East<br>(4&deg; West) |             |
| *** The number of Transponder : 7                         |             |
| *** Downlink Frequency                                    |             |
| * 1 : 11094                                               | * 4 : 11270 |
| * 2 : 11159                                               | * 5 : 11308 |
| * 3 : 11224                                               | * 6 : 11337 |
|                                                           | * 7 : 11388 |

|                                                                 |              |
|-----------------------------------------------------------------|--------------|
| Satellite Name : Intelsat 707 at 359&deg; East<br>(1&deg; West) |              |
| *** The number of Transponder : 17                              |              |
| *** Downlink Frequency                                          |              |
| * 1 : 3915                                                      | * 9 : 11015  |
| * 2 : 3990                                                      | * 10 : 11107 |
| * 3 : 4000                                                      | * 11 : 11174 |
| * 4 : 4175                                                      | * 12 : 11458 |
| * 5 : 4180                                                      | * 13 : 11514 |
| * 6 : 10960                                                     | * 14 : 11540 |
| * 7 : 10974                                                     | * 15 : 11592 |
| * 8 : 11014                                                     | * 16 : 11679 |
|                                                                 | * 17 : 11691 |